EthicShare

Pilot Implementation Proposal

Submitted to the Andrew W. Mellon Foundation
By the University of Minnesota
Center for Bioethics
University Libraries
Department of Computer Sciences

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I. Introduction

The Center for Bioethics, University Libraries, and the Department of Computer Sciences at the University of Minnesota seek support to pilot EthicShare, a discovery and collaboration environment for ethics scholars. Building on the recent planning phase, we propose to implement a pilot instance of a virtual community for ethics scholars and students, and possibly, for a broader public. The goal is to position EthicShare as a critical service that makes available quality electronic content and provides a productive environment for community engagement and scholarship.

The EthicShare planning work, supported by the Council on Library and Information Resources with funding from the Andrew W. Mellon Foundation, (see final report: http://www.lib.umn.edu/about/ethicshare/docs.html), underscored the needs of a highly multi- and interdisciplinary community of scholars. This initial planning phase focused on a subset of practical ethics, bioethics, to provide a focused audience for the specification and design of EthicShare. Bioethics is characterized by considerable intellectual diversity. It ranges from work that is self-consciously normative, drawing from religion and moral philosophy, to work that is descriptive and social-scientific, drawing from law, history, literature, anthropology, and sociology. Often bioethicists need ready access to information given the public's interest in receiving thoughtful and rapid input regarding bioethical controversies. Moreover, the field is becoming increasingly complicated owing to changes in the health care profession as well as changes in how scholars are cutting across traditional boundaries of knowledge. Adding further to ferment in the field, scholars are being trained today in quite different contexts: traditional academic departments, ethics centers linked to departments, and medical schools—or some combination of these institutional settings.

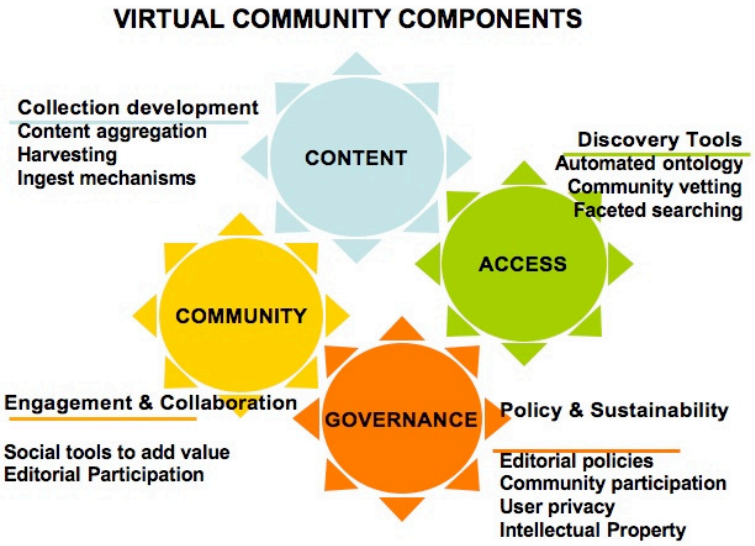
This diversity in focus, training, and specialization characterizes a field that is nonetheless only about 30 years old. As a relatively young discipline, bioethics is not dissimilar from the broader practical ethics community in the absence of investment in or exposure to new technologies and new genres of publication. With a new cadre of scholars and graduate students poised to move the field forward by engaging in broad public and scholarly conversations, there is an emergent community that is more attuned to new technological functionalities that improve the discovery experience and offer new modes of collaboration and communication.

Practical ethics is made up of several fields populated by humanities scholars working in a range of inter- and cross-disciplinary areas, applying humanities approaches to ethical issues in such arenas as health, new technologies, the environment, business, and engineering. The majority of scholars working in practical ethics have disciplinary training in humanities, whether it is philosophy (the largest proportion), religious studies, sociology, anthropology, policy studies, law, or others. The community of practical ethics is ripe for digital scholarly communication resources, as the fields within practical ethics are rapidly maturing and creating their own literatures. As the field of practical ethics matures, there is increasing interest and urgency in developing the community

infrastructure to record, access, manage, and use the knowledge resources central to its scholarship.

The goal of EthicShare is to create a discovery environment that models and facilitates new forms of collaboration, community engagement and exchange for ethics scholars—from bioethics to practical and applied ethics. This work comes in the context of the movement towards building the necessary cyberinfrastructure that supports virtual communities in the humanities, social sciences, and the sciences—all fields that play a role in ethics scholarship. Recent interests of ACLS, NIH, and NSF have included strategies to address the needs of distributed scholars who interact with information and data resources, engage in discourse, and cumulate valued resources for future scholarship. The University of Minnesota proposes to develop this type of virtual community for a discipline whose roots are in the humanities, but whose impact and research interests are found in a broad array of domains.

The conceptual framework of a virtual community for ethics scholars requires high quality content and resources; effective access and discovery systems; mechanisms for collaboration and community engagement; and governance structures that support sustainable models of collection building, technological development, and community participation. The framework as a whole creates a potential model for other scholarly communities.



A successful virtual community requires a model for sustainability. Building on our work during the planning phase we view sustainability from the dual perspective of sustaining the technology infrastructure and environment (i.e., the repository and associated functions/services), and sustaining the collaborative activity that gives the discovery environment its unique and pioneering character (i.e., an engaged community with commitment to participate and contribute to the environment). Our iterative implementation of EthicShare will focus on developing a scaleable and rich environment for discovery and access that includes content (scholarly materials, materials from the popular press, and multimedia resources), innovative user features, and experimentation

with more efficient and flexible forms of classification and indexing schemes. Developing strategies for harnessing user expertise and creating incentives for engagement will be a key focus of the pilot implementation phase of EthicShare.

Demonstration of the EthicShare prototype has already attracted significant interest from others engaged in the development of online services and virtual communities. Other research groups on campus have expressed interest in the model the prototype offers to develop mechanisms for a research group to coalesce its resources and engage in collaboration. These include Harvest Choice, a virtual environment that provides economic modeling for food production in developing countries, and the University of Minnesota Nanotechnology Research Group. TechLens, a UM project that is developing recommender technologies for scholars, hopes to learn from EthicShare how scholarly communities can associated metadata to collections of scholarly publications. This work could support future development of extensions based on EthicShare.

Additionally, at the recent DrupalCon 2007 meeting held in Barcelona, University of Minnesota staff held conversations with Dries Buytaert, founder and project lead of Drupal. From these interactions, Buytaert and other core developers conveyed enthusiasm about the expanded use of Drupal in an academic context and are interested in pursuing further conversations about how EthicShare might influence future directions of Drupal testing and development.

Our explorations of the extensibility of the technical architecture that underpins EthicShare suggest that the model can be used to support to other research communities.

Deliverables of EthicShare's pilot implementation efforts would include:

- An operational virtual community for scholars in practical ethics
- A sustainable and extensible open source platform for virtual community development
- Documentation of all content, metadata, technology, and policy development efforts and practices
- A model to enable scholars, in general, to engage in their scholarly work and participate in and contribute to a virtual community through the use of interactive web features and functionalities.

The University of Minnesota Libraries will assume responsibility for hosting the technology environment once established. The infrastructure will be designed for future extended support for additional communities of scholars and as a part of the general consolidated infrastructure at the University of Minnesota. EthicShare's proposed pilot implementation has already received a commitment from the University of Minnesota Office of the Vice President of Research to fund an EthicShare graduate student assistantship to further the development of this model.

The University of Minnesota Center for Bioethics and the EthicShare Governance Board, to be established in the pilot implementation phase, will be the central coordinating bodies of the EthicShare program.

II. Summary Findings from Planning Phase

The focus of the EthicShare planning phase (December 2006-July 2007) was to determine the needs and requirements of a virtual research environment of bioethics scholars. We also assessed the content and technological features that would suit the activities and priorities of the field and its related disciplines, as well as the general characteristics of virtual communities that speak to how a scholarly community communicates, develops, and grows. (The planning phase Final Report can be found at http://www.lib.umn.edu/about/ethicshare/docs.html.) These findings are briefly summarized below.

1. Bioethics Scholars

From activities such as site visits, surveys, collection development work, technology development, and iterative feedback with the EthicShare partner communities, the planning phase revealed that the majority of bioethics scholars want similar things in a virtual research environment (high quality resources, breadth of coverage, functions that enable individual work as well as the ability to share resources). The interdisciplinary nature of the field also makes it essential that EthicShare provide a wide array of resources to scholars beyond bioethics and into the areas of practical and applied ethics. Nearly 85% of scholars surveyed during the planning phases expressed a preference for accessing full text resources and many commented that a major benefit of EthicShare would be to make full text access as easy and seamless as possible.

Our findings also suggest that EthicShare users may not readily take on the role of populating the site with content. Respondents in our assessment suggested dedicated staff were more appropriate to assume the role of content acquisition and management. Given the heterogeneity of potential content sources and the potentially significant labor costs of identifying these sources, EthicShare will explore strategies for broadening the scope of core collections through efficient means such as targeted web harvesting and batch ingest of citation data in the areas of practical ethics. Since the quality of resources and of content contributed by users (such as comments, content description, etc.) is important to scholars in general, EthicShare also needs to develop effective mechanisms for reviewing content (e.g., an editorial board model that harnesses the expertise of selected users), and for enabling community participants to add value through various social features such as tagging. At the same time, EthicShare needs to balance the interests of individual scholars with the privacy concerns that arise when user behavior and contribution can be used to inform other features in the service. We believe there is evidence (particularly among the graduate student community) that the social aspects of EthicShare could offer benefits to the development of community, as well as potentially fueling new forms of scholarly discourse and communication.

2. Content and Technological Priorities in a Virtual Environment

The planning phase revealed a demonstrated need for a robust discovery environment that serves bioethics and the broader arena of practical ethics. Participants underscored the breadth of potentially relevant resources, drawn from many fields and in diverse formats. Community participants noted the value of technologies that were easy-to-use, but also were sufficiently sophisticated to enable interdisciplinary and multi-disciplinary scholarship, collaborative research, and community interaction. As access to a diverse corpus of high-quality content is a priority among scholars, the planning addressed the necessary balance of developing a repository with excellent core content as well as mechanisms to federate distributed content from specific online sites that are valuable to scholars. Such sites include those that collect important digitized content for the field of bioethics as well as government, publisher and scholarly society/association sites with relevant content to the areas of practical ethics.

EthicShare, therefore, seeks to strike a balance between access to quality core content sources and efficient mechanisms to identify, review, and add new content. EthicShare's contributions to information discovery, access, and community vetting are a combination of:

- Identification of reputable content resources and standards for selection;
- User features that facilitate and enhance discovery, access, and sharing of resources and individual contribution;
- Flexible and innovative design that promotes highly efficient and timely collection development and description.

These services have tremendous potential to change the ways scholars in bioethics and other areas of practical ethics interact with resources and communicate and engage with each other. Given the critical use of case study methodology within the fields of applied and practical ethics, there is significant interest among ethics scholars in services to aggregate diverse sources of scholarship that can be brought to bear on particular themes and cases.

Additionally, planning phase findings revealed a need for new models of indexing, classification, and ingest of content that rely more on efficient and flexible semi-automated processes, and less on expensive and labor-intensive efforts of library or other staff. Such mechanisms have the potential to involve a community of expert users in the production of research resources in new ways. Further, these features would represent a new form of collection development activity that combines the expertise of professional indexers and librarians with the practical experience and interests of users. The human component of vetting content and other contributions, as well as interpreting and producing scholarship, is a critical aspect of the scholarly process for many scholars. . We believe new forms of collection building and indexing techniques— through harvesting, tagging, bookmarking, commenting, and sharing—can add significant value to the scholarly process. Leveraging human and machine input to mutual advantage offers an opportunity for efficiency and potentially richer description and interpretation.

The planning phase allowed the EthicShare team to make substantial progress in the development and prototyping of technologies and the evolution of an iterative design

process for the potential site (see http://ethicshare.cs.umn.edu). These efforts have led us to these significant questions about the sustainability of traditional methods of building collections and the viability of harnessing community expertise in supporting or enhancing these functions. A key question motivating EthicShare is: Can a model be created which incorporates professional, technological, and scholarly contributions that is competitive with (in terms of utility, value, and cost-effectiveness) the classic model of high cost, labor intensive library-centric support practices? Can these discrete components be mutually beneficial and reinforcing?

Finally, as we develop systems that can learn from user behavior and draw on that behavioral intelligence to create useful services (e.g. recommendations), EthicShare offers a significant context in which to assess both the viability of social tools and the impact of this environment on scholarship over time. The high degree of interdisciplinarity in the general ethics community makes it an opportune model of the scholarly process, broadly conceived.

The pilot implementation of EthicShare seeks to build the infrastructure and community support that will enable us to respond to these questions.

III. Components of EthicShare

The EthicShare project seeks to create a virtual environment for ethics scholars to support tailored aggregation of relevant content, robust systems of information discovery and access, and governance structures for sustaining a scholarly information environment. We will also develop the infrastructure and begin to explore incentives for fostering community participation in a virtual scholarly environment. The implementation will build upon the results of the planning phase and develop a pilot instance of EthicShare serving the broader community of practical and applied ethics.

The proposed areas of focus of EthicShare's pilot implementation phase include:

1. **Content Development and Aggregation:** Initially, the environment will be pre-populated with contributed NLM/PubMed bibliographic citation and catalog data that will be subsequently enhanced by data from areas of practical ethics. These data will be selected by a content expert, acquired through negotiations with publishers and aggregators of ethics citation data and public domain opportunities, and ingested using a variety of techniques, depending on the source. Harvesting/import mechanisms will be developed to maintain a current, up-to-date collection. Users will also be asked to evaluate the quality of resources and participate in site content decisions in collaboration with the EthicShare editorial board (described below).
2. **Discovery and Access:** The environment is fueled by the open source Drupal content management system platform integrated with the Lucene Solr indexing engine. Features allow scholars to interact with resources and each other in new ways with tools for tagging, bookmarking, commenting, and sharing (formally

and informally). A partnership with OCLC WorldCat Grid Portfolio will allow EthicShare to pursue full text resolution regardless of user affiliation or location.[1]

3. **Community Engagement and Collaboration:** Drawing on relevant research in the fields of sociology, computer science, and library science, EthicShare will design mechanisms for community engagement. Social features such as context-sensitive rating and annotation capabilities will be built along with other features that integrate user behaviors into discovery processes offered to others in the environment. Functions will be developed that provide users with opportunities to contribute original content, as well as content descriptive data to the database. Measurement of community engagement will be derived from use data, unique page views, and the amount of content (from scholarly works to comments and tags) contributed in the first months after beta release.
4. **Governance:** A governance board will be drawn from leading scholars in the fields of practical ethics, including bioethics, and will include EthicShare planning phase partners, among others. The governance board will be charged with establishing policies for collection development, user privileges and privacy, using and creating intellectual property, and priorities for technology development.

These four component areas of investment are described in detail below.

1. Content Development and Aggregation

EthicShare's highly interdisciplinary and distributed information corpus is of critical value to scholars in practical and applied ethics and will serve as a catalyst for strengthening the scholarly community. Findings from the planning grant demonstrated that depth, currency, and ongoing relevance are key attributes that bioethics scholars value in a collection. Further, participants suggested that the future EthicShare environment must exploit multiple sources of data and content in order to achieve an effective core collection. This compels the project to move towards innovative approaches of acquiring content to optimize and complement EthicShare's core collection. In this pilot implementation phase, EthicShare partners will concentrate on three main sources of content ingest:

- NLM/PubMed citation data

[1] **OCLC WorldCat Grid Portfolio:** At the May 2007 OCLC Members Council meeting, Robin Murray, Vice-President of Global Product Management, defined the WorldCat Grid Portfolio as a model supporting OCLC's vision for a "worldwide collaborative" through the interaction of local resources, group resources, and global resources. OCLC asserts that it is uniquely positioned to deliver solutions engaging these three levels that "simultaneously leverages the value of the network, and adds value to the network." Architecturally, the WorldCat Grid Services is a network interface and component layer that facilitates the sharing of services between various information systems (e.g., digital repositories, access and delivery systems, management systems, etc.) and content and metadata services (e.g., WorldCat, registry content, cataloging services, etc.). The components of Grid Services, according to OCLC, broadly consist of data utilities, network services, standards, developer network, and registry infrastructure. The OpenURL Resolvers Registry is a key component of the Grid's registry infrastructure in the support of open linking.

- Citation data for digitized content harvested from open access repositories
- Community contributions in vetting content

We will also pursue collection development activities in areas of practical and applied ethics in order to identify rich content and develop key relationships with publishers of relevant resources. These areas include:

- Ethics and Human Rights
- Ethics and Responsible Conduct of Research
- Journalism Ethics
- Engineering Ethics
- Business Ethics
- Environmental Ethics
- Ethics and Public Policy

In general, initial targets will be government and other public documents, specialty journal literature, as well as key conference proceedings. Specifically, in the areas of ethics and responsible conduct of research, we would target journals relating to ethics of research on human subjects including *IRB*, *Bioethics*, and the *Journal of Empirical Research in Human Research Ethics*, and *Accountability in Research*. We would also seek to provide web links to the Office of Research Integrity at the US Department of Health and Human Services, all relevant professional organizations such as the American Society for Bioethics and Humanities, the National Academies of Science, the Institute of Medicine, the National Science Foundation, the Association of American Medical Colleges, and Public Responsibility in Medicine and Research.

In the area of ethics and public policy, we would target all relevant journals (which span disciplines such as history, economics, public policy, and political science), as well as reports of domestic and international commissions and associations. Initial target journals of broad policy interest include the *Journal of Health Politics*, *Policy and Law*, and *Perspectives in Biology and Medicine*. EthicShare partner IUPUI has already scanned and digitally preserved some relevant materials as part of their Bioethics Digital Library project. We will also work to include reports emerging from federal and state agencies at the intersection of health, environment and business, and relevant national and state legislative initiatives.

As part of the content acquisition process, intellectual property issues (including copyright and licensing) involved in aggregating data into a unified corpus for redistribution will be addressed.

Main intellectual property tasks include working with the EthicShare Governance Board to outline a clear set of practices for evaluating copyright law when identifying new content for EthicShare, determining the processes for implementation and removal of content when necessary, and calculating risk based on fair use precedents and principles of open access and advancing scholarship. Given the serious nature of these issues, we will consult widely with relevant experts to determine a protocol for best practices, including the respective general counsels of the EthicShare partners and the Office of General Counsel at the University of Minnesota.

Specifically, the Governance Board will address the following issues:

1. Content ownership and acquisition
    - Comments posted on EthicShare are copyrighted by the authors, and arrangement between the authors and host may be helpful for any redistribution of the content.
    - Main third-party content sources (including citation databases, full text content, digitized content, bibliographies, or selections of citations on a specific topic) are protected by copyright and must be handled accordingly.

2. Content Access by users
    - Content that is in public domain or authored by the U.S. government, and some archival content, can be legitimately accessed in full text. All other content will have to proceed according to the license agreements of each individual institution.
    - There is a significant amount of ambiguity in many license agreements and terms of third-party content. EthicShare will have to work with the host university's legal counsel on a case-by-case basis to assess risk factors.

3. Content Creation (by users and others)
    - Community contribution to the EthicShare database (submitting articles, links, citation, comments, etc.) poses risks of copyright infringement only if a user contributes works for which he or she is not the legal owner. In such cases, a "take down" policy would allow for the expedient removal of any questionable content so that it may be thoroughly reviewed by EthicShare's legal counsel.

In summary, EthicShare will work with University of Minnesota Office of General Counsel to develop intellectual property practices to handle issues of content licenses, content distribution, and copyright protection, as well as intellectual property rules for content contributed by users.

EthicShare Technical Architecture

Concurrent with content development and intellectual property policy development, architectural work related to content aggregation ingest, hosting, and delivery will begin in the first phase of pilot implementation. The technical team will develop the data model(s), and plan and develop the metadata repository architecture including a number of processing functions (for systematic data normalization, de-duplication, enrichment, etc.).

Conceptually, the EthicShare technical architecture consists of four components: data sources, metadata caching and processing, Drupal content management system (core system and modules), and external systems. An overview of each is provided below.

a. Data Sources

EthicShare will "acquire" bibliographic or record-based data from heterogeneous sources to meet the content needs of the EthicShare community. The objective is to create a community-tailored aggregation of bibliographic data for purposes of discovery and support of scholarship. It is expected that sources will include bibliographic records from NLM's PubMed database, select other indexing and abstracting databases, catalog data from NLM, and possibly the Library of Congress and OCLC sources and targeted digital repositories and web sites. Once content has been selected and rights for acquisition have been cleared, strategies for acquiring the data will be analyzed on a case-by-case basis and export and/or harvest strategies will be developed and implemented. The technical team has experience dealing with a wide variety of data formats and anticipates the need to acquire data in various standard bibliographic formats (such as RIS, BibTeX; catalog data in MARC; repository data in Dublic Core or VRA Core; various schema in XML; and less structured data that may only be available in HTML). Routines for ongoing periodic data acquisition will be established.

b. Metadata Caching and Processing

Acquired data will be cached in a staging repository where it will be queued to undergo a number of automated (scripted) processes to ensure consistency and then will be moved to the Drupal database Bibliography module (or extended version thereof). These processes include data normalization, de-duplication, and record updating (i.e., in the case where provisional records initially acquired need to be replaced by full records). The technical team has extensive experience in metadata remediation, normalization, and crosswalk development and implementation. Minnesota has already and will continue to benefit significantly from Cornell University's and University of Rochester's work on the concept and design of the metadata services hub and the development of processes and "pipe" software to effectively manage the tasks of normalizing and merging heterogeneous metadata.

More exploratory aspects of record treatment at this and possibly other stages include record enhancement through ontology mapping, mapping of end-user supplied tags to relevant thesauri or dictionaries, or hybrid approaches. Recent work at Minnesota involves the testing of WordNet, a large lexical database of English, developed under the direction of George A. Miller at Princeton University. In this system, nouns, verbs, adjectives and adverbs are grouped into sets of cognitive synonyms (synsets), each expressing a distinct concept. This may be one approach to bringing greater conceptual structure and consistency to end-user supplied tags for a specific community. A consultant will be engaged for this exploration, analysis, and experimentation.

c. Drupal: Core and Modules

The core application of the EthicShare software architecture is Drupal, an open source content management system. Drupal manages users and content and provides numerous mechanisms for manipulating and displaying information based on the relationships between these two areas.

Drupal stores user information and user-provided data within a relational database (e.g., PostgreSQL or MySQL). Files and other forms of digital media are stored as native files within a Drupal directory and referenced within this database. Drupal provides mechanisms for securing both forms of content.

From a "core system" perspective, Drupal provides internal APIs (Application Programming Interfaces) upon which the system may be extended. Core system features (supplied within the "includes" directory of a standard Drupal installation) include but are not limited to:

- Database Abstraction
    - including Result Set Handling
- Session Handling
- Web Services (XML-RPC)
- Secure Form Handling
- Database Caching
- Localization/Internationalization
- Theme System
- Unicode Support (Advanced PHP Configuration)
- Image Handling
- Plug-in Support (via the Modules System)

Drupal's APIs are well documented and made available via a dedicated site (http://api.drupal.org/). Topics covered in this summary may be explored in greater detail at that site.

Drupal's key system components cluster around these core areas: the node system (data storage), user management, themes (presentation/view logic), the taxonomy system, and the modules system. Each is briefly explained below.

Node System

A "node" is Drupal's fundamental unit of content. Through the node system, content may be commented upon, revised (via Drupal's revision system), moderated, ranked and otherwise acted upon by users. Because of the focus upon community interaction, a wealth of node-centered interactive activities exist as either core system features or as features added by contributed modules.

Additional key features include: access control, content workflows (allows privileged users to move content between various publication states), file attachments/file management, descriptive metadata (via the Taxonomy System) and caching mechanisms.

User Management

Drupal manages users into a role-based access control system. Users may be assigned to multiple roles. Roles are, in turn, assigned to a matrix of permissions that govern user authorization for system features and content (nodes, etc). Nodes and other system content are associated with users.

Theme System

The Drupal Theme System affords developers with granular control of visual output from Drupal. Site developers may develop multiple themes for a given site, serving a completely different theme for a given user or group of users. "Content Regions" provide developers and administrators the ability to assign content to particular portions of a given page. Included in this content are Drupal "Blocks." The Block System adds a full graphical user interface (GUI) for managing small bits of content that are repurposed throughout the entire site. As with other forms of content, Blocks may be assigned to Content Regions which are, in turn, embedded within template files. Finally, the Theme System gains access to system data via the "hooks" system such that developers may intercept and customize information prior to outputting it to HTML.

Taxonomy System

Drupal provides a flexible taxonomy system allowing the creation of unlimited separate classification schemes. Each of these schemes can be arranged as a simple list, as a tree, or as a tree with interconnected branches. Administrators can choose different schemes to associate with each content type, and users may then browse tagged content by its taxonomy terms. The system also allows authorized users to (1) tag content using custom labels, and (2) automatically classify new content based on this taxonomy, making for highly flexible information classification and retrieval.

Drupal Module System

Perhaps the most critical feature of the Drupal platform and basis for EthicShare innovation is the Module System, which provides a clear path towards extending core functionality. In fact, many "core" features exist as Drupal modules. Drupal's internal APIs eliminate the need to reproduce basic authentication/authorization, input control, security, form generation, URL handling and much more (note: Drupal has an active security team to proactively address potential threats such as cross site scripting attacks). For this reason, Drupal is often referred to as a kind of rapid application development environment. With a large community of developers to refine both core features and contributed modules, individual developers gain access to a well-vetted and diverse environment of building blocks on which to build. As a result, Drupal is both robust and agile.

Perhaps the most important modules used within the EthicShare project to date are the Solr, Bibliography, Buddy List, and Organic Groups modules. These modules are covered briefly below.

The Solr module ties the EthicShare literature database to a high capacity open source search appliance also called "Solr." This search appliance was first created by CNET Networks and made available to the wider community as an open source product. Solr was built on top of the Apache Lucene search engine and extends its functionality in a variety of ways.

The Bibliography Module stores EthicShare citation data. This data is stored as additional fields (e.g., Journal Title) within a database table. Bibliography entries are then related back to the node system through database table keys. The result of this approach is that bibliographic data benefits directly from features found within the node

system (e.g., comments and descriptive metadata). And as relating data associated with a contributed module with that of the node system is the preferred Drupal methodology, Bibliography Module-based content also stands to gain from new functionality added by other contributed modules that add functionality to the node system (ranking content, voting on content, sharing content with selected groups of users, etc).

The Organic Group modules allow users to create and manage collaborative group spaces, supporting a wide variety of interactive activities. Groups may be made private and share private information. Various forms of Drupal content integrate into Organic Groups (e.g., blogs). EthicShare will rely upon these modules to capture a variety of scholarly activities, such as journal discussions and document sharing.

Finally, the Buddy List module offers a glimpse into a new way of filtering and repurposing content based upon one-to-one peer associations. Users may request other users to add them to their own list of trusted colleagues, establishing a peer relationship. Scholars in the early phases of the EthicShare project indicated a preference for the analysis and commentary of a select group of their peers. The Buddy List Module points the way towards the possibility of building a variety of social networking features directly into the scholarly research setting.

(A full listing of the Drupal modules that EthicShare development has used to date can be found in Appendix B.)

d. External Services

Drupal's flexible core technology and extensive (and growing) array of modules makes it possible to develop interoperabilities or "hooks" to services beyond the hosted architecture. For example, the EthicShare prototype delivered a proof-of-concept hook to OCLC's world registry of OpenURL resolvers. This made it possible for a researcher at, say at the University of California-Berkeley to search the EthicShare database at Minnesota and seamlessly link from a bibliographic citation in EthicShare to the full-text through the authentication and authorization that UC-Berkeley has established for its users. Also in the prototype, the EthicShare team gave users the opportunity to extend their search beyond the hosted database to a domain-tailored subset of the web through the leveraging of Google Co-op, a customized search service. Additional services include methods to syndicate content to other users (RSS feeds), sites (e.g., blog, portals) or services such as the large-scale social bookmarking venues like del.icio.us, or bibliography-sharing venues like CiteULike or Connotea. Drupal's strong support for Web Services via XML-RPC opens the door to vast possibilities for real-time exchanges with external systems and services.

(See Appendix A and B for additional depiction and explication of EthicShare's technical architecture, including components related to metadata ingest and processing.)

Community Contributions to EthicShare Content Creation

In other virtual community contexts that depend on social features, users have been enthusiastic participants in the collective decision-making of a community. The tasks they are asked to perform are based on intelligent task routing—the process of basing a request for participation on previous actions made by the user (e.g., what they are reading, downloading, tagging, searching).

Registered users of EthicShare will be invited to contribute to building EthicShare's core collection by participating in the editorial decision-making process. As new content is collected for EthicShare (through OAI-compliant digital collections, batch ingest, and other means), users will be asked to review new items that have been mapped to a user's interests (an automated profile built according to what the user reads, what search terms were used, what tags added, etc.). Users' contributions will then be routed to a second user who will vet the judgment of the first user. When two users in a row agree on a decision to include or exclude content from EthicShare, that decision will be final. When there is disagreement, other users will be invited to participate until there are two uniform decisions made in a row. This is a tested and well-established procedure used in many social virtual communities.

One key issue in developing a new community-maintained resource is that the resource needs to be used by a broad enough cross-section of the community so that valuable usage experience can be obtained. For EthicShare we have developed relationships with leading researchers and directors of ethics centers around the country. These relationships will ensure access to and deep interaction with the leaders in the field. However, it is important to have usage experience that is broad as well as deep. To that end, we have created relationships with the top four professional organizations within the practical ethics domain: American Society for Bioethics and Humanities (ASBH; 1500 members), Association for Practical and Professional Ethics (APPE; 700 members), Association of Bioethics Program Directors (ABPD; 75 members), and the Society for Business Ethics (SBE; 800 members)[2]. We will invite participation from the entire membership of these four societies, and ask them to in turn invite their colleagues and students. There is some overlap in membership among the societies, so we estimate they comprise 2000 unique members. Our goal during the pilot phase is to attract approximately 10% of this membership, or 200 users. With this user base we will be able to develop a rich understanding of the usage patterns that are most valuable to the community as a whole, which will direct our ongoing development of the resource.

Further Content Aggregation

A final dimension of EthicShare's acquisition and development of content will involve investigating systematic techniques for actually acquiring data (such as import interfaces, web crawling).

Throughout this phase of content ingest and development, EthicShare will work with the EthicShare technology review panel (discussed below) and engage in usability testing

[2] See Appendix C.

and other regular feedback iterations with targeted users to assure optimal site standards, efficacy, efficiency, and value (see Development Schedule below).

Content Development and Aggregation: Broader Impact

By creating a body of diverse core content, EthicShare offers the ethics scholarly community new forms of discovery, access, and opportunities for collaboration. The pilot implementation phase allows us to develop a scaleable, systematic model of data ingest protocols that are flexible and efficient. It also allows EthicShare to provide full documentation that will be critical to future phases of EthicShare and helpful to other similar projects that seek to bridge legacy collections with publishing and distribution innovations.

The process of building and expanding EthicShare's core collection allows us to develop a model for building a community-defined resource from distributed content. By working with licensed and user-contributed content in a multi-institutional context, we will have the opportunity to develop a thorough model of intellectual property practices for licensing, sharing, and distribution.

In summary, the broader impact of EthicShare's pilot content development work will be to:

- Develop core content beyond bioethics to serve the areas of practical ethics in which scholars in applied ethics and its subfields can work and contribute;
- Create a systematic, scaleable model for data ingest and processing;
- Create a collection model to bring together distributed content from a variety of disciplines and locations;
- Create a technical architecture that is flexible, extensible, and interoperable with other systems and institutions;
- Develop intellectual property practices for managing access to licensed content in a multi-institutional context and for managing user contributions;
- Facilitate multi-institutional collaboration;
- Develop mechanisms for community participation in the editorial decision-making process of collection development.

2. Discovery and Access

Economic pressures suggest that current practices of specialized indexing and classification will not scale in the contemporary culture of information access. At the same time, researchers are often overwhelmed (or sometimes underwhelmed) by the results produced by current search tools. The EthicShare pilot will investigate expert-created classification schemes and user-generated/selected vocabularies to build content description, add value, and amplify search facility. We will also investigate ontological techniques to automatically assign indexing terminology on the basis of vocabularies and taxonomies established by both professional indexers and end-users. By comparing end-user tagging and description with taxonomies designed by experts (e.g., NLM controlled vocabulary), we will be able to assess the cost effectiveness and value of user-generated

tagging vs. professionally generated description, as well as the usefulness and value of different types of indexing features. Through these efforts, we hope to understand the potential value of multiple approaches to indexing and description—expert, user, and automated—to the user community of scholars.

To accomplish this work, we will work with an Automated Ontology consultant to establish protocols and best practices. We will then implement easy-to-use tagging and classification tools in the bibliographic environment, and we will design mechanisms to assess the value of different levels of contribution (e.g., automated techniques will select potential descriptors for users, who in turn will review and select the most appropriate terms; or, user behavior will be tracked to determine how effective a tag was in a search).

The use of *faceted searching* (breaking a result set into relevant category groups—date, author, journal, related search terms, etc.) is another dimension of EthicShare's research on the potential of automated- and community-generated taxonomies. The EthicShare prototype created during the planning phase demonstrated the potential of faceted searching for improving the search experience for users. The significant interest expressed by users in faceted searching leads us to ask how facets should be identified for a specialized community? How do facets affect the types of data that are leveraged through indexing? What happens when data contributed by users (e.g., a specified individual's tags, ratings, or commentary) is indexed as a navigation option? Is this valuable to other users and how effectively can we determine the usefulness (precision, user-satisfaction) through automated measures? Also, does faceting lend greater effectiveness in the navigation of multidisciplinary literature? What might this suggest for the amassing of larger data aggregations and the broadening of discovery without the loss of efficiency?

To address these questions, we will build features that facilitate user evaluations and the contribution of tags through intelligent task routing (automated associations of search queries with a menu of task options and features). We will also track user behaviors to assess the usefulness of different features (expert-created tags, user created tags, a combination of both) based on criteria such as:

- How many searches are run with a particular tag/keyword/facet: How effective is a proxy for the utility of a search term?
- Do searches end with downloading/reading a document: Is the user able to quickly identify a valuable resource based on search terms?
- Are searches followed by new searches: How many search terms does a user employ before accessing content?
- What types of tags/keywords yield results with the best precision/recall?

From a technical standpoint, the question of how to connect registered users with the appropriate full text copy that is licensed by their institutions is of great importance. This project contributes to taking multi-institutional registries to the next practical level of implementation by working with OCLC/WorldCat Grid Portfolio and OCLC OpenURL Resolvers Registry[3] to use such registries and OpenURL protocols for discerning a user's

[3] As a component of WorldCat Grid Services and the WorldCat Registry program, OCLC provides an

institutional affiliation. From a content and access perspective, this registry work facilitates multi-disciplinary and multi-institutional research collaborations by allowing users to share resources regardless of their home institution or location while using EthicShare.

The EthicShare access work will address full text access and authentication issues by seamlessly routing users to remotely hosted licensed content where no initial authentication is required. This is critical for gaining appropriate access to licensed digital content, and for the success of virtual communities generally. EthicShare will work with OCLC on implementation issues related to the use of OpenURL resolver registries with the aim of evaluating and applying one or more option in the EthicShare environment. Further, we will investigate sensible and useful responses to users who hold no entitlements to access content through an institutional arrangement (e.g., such a request could be resolved through a search in worldcat.org).

Like full-text linking through OpenURL services, EthicShare will also seek to integrate other external services through various web services protocols. Services of possible interest to the community include globally-offered social bookmarking and bibliographic sites (i.e., del.icio.us, CiteULike, Connotea, etc.), related record services of NLM or other providers, customized web portals through Google Co-op, Google Book Search, Open Content Alliance, or other large scaled book and journal digitization projects. These services would be managed by the Service and Delivery dimension of the overall EthicShare architecture (see Appendix A).

A highly iterative design process is also essential to the delivery of meaningful services to individual scholars and the community as a whole. This process will involve an agile development environment with regularly staged releases for feedback and assessment before and after beta release (see Development Schedule below). We will employ usability testing, use-data analysis, email surveys, and intelligent feedback mechanisms to capture explicit and implicit user inputs. We will also work with interface design specialists and the technology review committee to assess the progress of these efforts. User features will be released for regularly staged feedback loops with prospective EthicShare users (see Development Schedule below).

Discovery and Access: Broader Impact

By creating flexible, efficient models of content description EthicShare will be able to engage the community in the creation and development of resources, evaluate the community's interest in adding value to content through collaborative indexing, and its ability to contribute to the development and evaluation of semantic web techniques for

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OpenURL Resolvers Registry (http://www.oclc.org/productworks/urlresolver.htm) in which individuals and organizations can maintain OpenURL resolver information in a single location where it can leveraged across services in the larger information environment. The registry includes sites-specific IP ranges, resolver data, and a gateway which can redirect OpenURLs to registered resolvers based on the requester's IP address. OCLC maintains this registry and provide partners with controlled access to this data to facilitate an improved open linking experience for the user.

information retrieval. Further, by comparing expert-produced content description and indexing classifications with those produced by users and by automated means, EthicShare will contribute to broad discussions about how legacy behaviors (commenting, reviewing, describing—by librarians and users alike) can be mined to produce a dynamic discovery environment that is sustainable over time.

In summary, the broader impact of EthicShare's work on indexing, access, and discovery includes:

- Design of flexible and efficient models of content description that leverage expert, user, and automated contributions;
- Assessment of community's interest in and ability to contribute and add value to content description;
- Contribute to a more effective implementation of OCLC's OpenURL resolver registry;
- Development of features that measure and respond to user behaviors.

3. Community Contribution and Engagement

Community contribution and engagement are paramount to EthicShare's mission. Aspects of community involvement infuse each area of EthicShare's pilot implementation plan. Developing a community-driven and community-stewarded online environment in a multi-institutional and multi-disciplinary context calls for innovative, engaging, transparent, and simple processes that allow even technology-shy people to participate. A substantial part of EthicShare's research mission is to investigate the role of the ethics scholarly community in the development and sustainability of a virtual community. Therefore, we are interested in exploring the mechanisms and features that facilitate participation and use.

Building on the work of University of Minnesota computer scientist John Riedl[4]—whose work on online communities and community maintenance mines prior research from sociology, psychology, anthropology, and economics to develop new technologies for online communities—the EthicShare technology and project teams will build a series of tools to attract community participation, along with a series of measures to evaluate user experience and contributions. These measures include user satisfaction and automated measures:

- User Satisfaction: Through surveys, email queries, focus groups, users will report on their satisfaction with the overall environment.
- Metrics: Features will be built in Drupal to log user activities, order of activities,

[4] John Riedl's expertise in the experimental and research aspects of EthicShare is an important resource for the project. Professor Riedl's contribution of time and effort has been substantial thus far, and he is invested in the further development of EthicShare. Professor Riedl's extensive work on virtual communities, the psychological mechanisms that compel participation, and the long-term sustainability and maintenance of such communities makes him an asset to the project team. Moreover, Professor Riedl views EthicShare as an important opportunity for using a professional-scale test bed to further contribute to the development of and scholarship on virtual communities.

and duration of activities. Metrics for each user will include sessions per month, average duration of session, pages visited per session, searches performed, the success of the searches (both implied from user actions after the search, and explicit from occasional popup questions), etc.

As a site that is built around easy to use social networking technologies that help users navigate complex information spaces, EthicShare will be a test example of how social web applications can foster community and engagement. We will develop mechanisms to motivate and measure different forms of community participation from submitting comments, to evaluating the quality of a resource, to contributing content.

Two primary forms of community incentives will be used. The first is a *retrospective measure of value:* a representation to individuals that displays information about the use of the individual's contributions (tags, reviews, comments, etc) by other members of the EthicShare community. Retrospective measures can directly show a user how valuable her contributions are to other members of the community. The second measure is a *prospective representation of value*: a measure of how helpful tags and other user contributions on an item are likely to be for other users, based on past experience with other similar items, and other similar users. Prospective measures have the advantage that they can help users choose what types of effort are likely to add most value to the community, but the disadvantage that they are of necessity an estimate of future performance. Both forms of measurement require a critical mass of users and use in order to project prospective value and to measure retrospective value. While EthicShare builds participation in its early stages of implementation, we will depend on other incentives for user and community participation such as *role representations* and *score cards:*

- *Role Representations*: As individuals do more work for EthicShare (reviewing content, adding tags and comments, etc.) their role in the EthicShare environment will be made visible through a representation of the top contributors, editors, and members of the EthicShare editorial board. This is a public representation of an individual contribution to the community environment that will be adapted to suit an academic and scholarly user community and will be recognizable to outside committees such as those for granting promotion and tenure.
- *Score Cards*: As individuals do more work for EthicShare, they receive reports about the usefulness of their contribution (x number of people have read/downloaded the article you reviewed for EthicShare inclusion, etc.) As with role representations, scorecards will be adapted to recognizable standards in academic communities. We will explore the advantages and disadvantages of making these score cards public; past work has shown that in some cases public visibility can be demotivating to users for at least two reasons: some users are discouraged because they realize they will never be able to be top performers, while other users are tempted to reduce their level of effort through a *reversion to the mean* effect. On the other hand, properly chosen public statistics are often motivating, as they show substantial effort across a broad community of participants.

These measures will carry over into later phases of EthicShare.

EthicShare will build its profile and presence in the community of scholars in practical ethics through presentations at national and local scholarly meetings including the Association for Practical and Professional Ethics (APPE), in February 2008 and 2009, the October 2008 annual meeting of the American Society of Bioethics and Humanities (ASBH), the Association of Bioethics Program Directors (ABPD) in May 2007 and October 2008, and the Society for Business Ethics (SBE)[5] in August 2008. EthicShare project members will also submit papers for review to the annual conference for Computer Supported Cooperative Work (CSCW; November 2008)[6].

EthicShare team members will also strategically place articles and announcements in library and ethics newsletters and journals, and engage in other forms of outreach to ensure awareness of the project, demonstrate its utility and value as a model for collaborative scholarship, and report out on its progress and continued development.

In collaboration with the EthicShare Governance Board (discussed below), we will also determine privacy protocols for users, paying special attention to issues of disclosure and sharing (openly or among a select group of users), as well as transparency and consistency. Additionally, we will develop policy for obtaining informed consent from participating users, and provide the utmost clarity about when, how, and the extent to which personally held information is disclosed through various site functions and services.

Community Contribution and Engagement: Broader Impact

EthicShare is positioned to make an important contribution to questions of technology, community, and scholarship. We expect this work will increase our understanding of the workings of academic communities, the tipping points of change in personal and collective research habits, and the value of social technologies in scholarly settings. By developing iterative methodologies for assessing social engagement in an academic context that draw on automated tracking and substantive and substantive live engagement with EthicShare users, we will also provide a model for how other potential sites might engage a community of users.

In summary, the broader impact of EthicShare's work on community contribution and engagement includes:

- Contributing to an understanding of academic communities and the value of social technologies
- Creating a model for engaging a community and evaluating its willingness to contribute to a scholarly research site
- Contributing to relevant research on "community maintained artifacts of lasting value" (CALV) and computer-human interaction, both interdisciplinary areas of

[5] We have been in contact with representatives of SBE and they are receptive to EthicShare's presence at annual meetings to raise the project's profile.
[6] CSCW has historically been every other year, but is expected to become an annual conference beginning in 2008.

computer science that study virtual communities in the context of psychology, business, anthropology, and sociology.

- Developing privacy and contribution protocols for user participation

4. Governance

Establishing an effective and accepted governance model for technology and other decisions is a fundamental element of any successful multi-institutional, multi-disciplinary virtual community. At the start of EthicShare's pilot implementation phase, a technology review panel will be formed to evaluate the existing prototype and provide input to the design team on architectural issues relating to design, protocols and standards, leveraging of existing technology, performance, scaling, interoperability, and pertinent trends in the virtual community development arena. Participants will include the EthicShare technology team and members of the department of computer science at the University of Minnesota, a representative from the University of Rochester eXtensible Catalog (XC) project, a representative of the OCLC/WorldCat Registry, and Peter Brantley, Executive Director of the Digital Library Federation.

The EthicShare Governance Board, to be instituted at the outset of the pilot implementation phase, will be charged with managing policy and sustainability issues including end-user privacy protocols, intellectual property and copyright concerns, technology directions, certain content development questions (such as the scope of a diverse collection), and long-term sustainability. The board will adopt an editorial-board model for vetting EthicShare content in collaboration with site users. Members of the Governance Board will include James Childress (University of Virginia, Institute for Practical Ethics and Public Life), Eric Meslin (Indiana University-Purdue University, Indianapolis, Center for Bioethics), Richard Miller (University of Indiana, Bloomington, Poynter Center for the Study of Ethics and American Life), and Jeffrey Kahn, Wendy Lougee, and John Riedl (University of Minnesota). Other prospective members include an individual from the National Library of Medicine, and Chuck Henry of the Council on Library and Information Resources. Additional members will be added as the scope of EthicShare grows. Potential additional members include Patricia Werhane (University of Virginia, business ethics), Jane Kirtley (Univeresity of Minnesota, media ethics), and Bruce Jennings (Center for Humans and Nature, environmental ethics).

The Governance Board will regularly review industry and institutional practices at other scholarly and/or social sites, as well as feedback and usability testing results from regularly staged site tests. An annual meeting of all partners will provide an opportunity to meet to review policy, assess progress, determine next future steps, and identify potential new institutional partners who can assist in reaching the broad ethics user community.

With respect to intellectual property, copyright law, and licensing policy, EthicShare will put procedures in place to determine the source and conditions of use for content added to EthicShare's repository, especially in the case of user-contributed materials. We will also determine processes for implementation and removal of content when necessary, and calculate risk based on fair use precedents and principles of open access and advancing scholarship. Given the serious nature of these issues, we will consult widely with relevant

experts to identify best practices. The Governance Board will also work with the University of Minnesota Office of General Counsel to assess policy and implement and enforce all necessary copyright and other legal measures.

Governance: Broader Impact

EthicShare's governance work seeks to provide a model for multi-institutional collaboration at a social/scholarly virtual community.

IV. Project Personnel

The project's organization and associated roles are detailed below:

1. University of Minnesota Project Team

- Jeffrey Kahn (Director, Center for Bioethics, and Professor) will serve as Co-Principal Investigator for the project and will play the lead role in convening the Governance Board and representing the project to the practical ethics community.
- John Riedl (Professor, Department of Computer Science) will serve as co-principal investigator and will play a lead role in technology development and community engagement.
- Wendy Pradt Lougee (University Librarian) will serve as Co-Principal Investigator for the project and serve on the Governance Board.
- John Butler (University Libraries, Digital Library Development Lab) will serve as Technology Director, overseeing the work of the application developers, and overall technology development and implementation. He will work in coordination with the project director.
- Cecily Marcus (University Libraries, Postdoctoral Fellow) will serve as project director/lead researcher and will manage the project work plan, and coordinate project documentation and content, indexing, and community research.
- Collection Development Lead (to be hired) will provide expertise in collection building in the areas of practical ethics.
- Bill Tantzen, Application Developer (University Libraries, Digital Library Development Lab), will be responsible for documenting business and technology specifications of technology implementation, implementing technology, and doing periodic assessments with users and the technology review committee.
- Chad Fennell, Application Developer (University Libraries), will be responsible for documenting business and technology specifications of technology implementation, implementing technology, and doing periodic assessments with users and the technology review committee.
- Barton Moffatt (Center for Bioethics, graduate student) will provide assistance in content, indexing, and community activities.
- Computer Science Graduate Student Assistant (to be hired) will provide assistance with technology development and implementation.

The project team will also work with an interface design consultant for technology development, and an Automated Ontology consultant to assist with establishing protocols

and standards for automated indexing activities. A potential Interface Design consultant is Amy Praught, who has worked with the University Libraries Digital Library Development Lab on the Harvest Choice project. (The company for which she works can be found at http://portpholio.com/index.html.)

The identification of an expert in the area of automated, community-oriented approaches to ontology development has included Peter Brantley, Executive Directory of the Digital Library Federation and MacKenzie Smith, MIT Libraries Associate Director for Technology (with deep connections to the W3C and MIT's SIMILE Project -- Semantic Interoperability of Metadata and Information in unLike Environments). While the field is still open and selection not yet narrow, we have identified the following individuals and one company as possible candidates:

- Diane Hillman, Cornell University, and National Science Digital Library Registry Project
- MIT's SIMILE Project team members
    - Eric Miller, former W3C Semantic Web Activity Lead and MIT CSAIL Research Scientist
    - MacKenzie Smith, MIT Libraries Associate Director for Technology
    - Ben Hyde, MIT Libraries Project Manager

- Sebastian Ryszard Kruk, Semantic Web Researcher, Digital Enterprise Research Institute, National University of Ireland, Galway, Ireland
- Zepheira -- consultant company specializing in semantic web and rich web collaboration technologies (http://zepheira.com)

2. Partners and Advisors

As a collaborative endeavor, EthicShare will work with a number of key partners in the pilot implementation phase. These include:

a. National Library of Medicine (see Appendix D):
- NLM will provide bibliographic citation data to EthicShare at no cost. EthicShare/UMN will agree to abide by NLM's standard data agreement. EthicShare will share with NLM any unique data it creates or aggregates for which EthicShare has the rights to distribute.
- NLM and EthicShare will pursue a research partnership to explore community and user requirements. EthicShare will share with NLM any relevant findings, user data, and collection scope information that are of interest to NLM.
- NLM and EthicShare will explore a research partnership on the question of flexible indexing techniques (including automation, semi-automation, and community participation) in order to better understand the potential of a user community adding value to citation data. EthicShare will share with NLM all findings relevant to the question of indexing and content description.
- NLM and EthicShare will explore mutual interests in providing appropriate copy access to institutionally licensed content through a publicly available database. EthicShare will share with NLM all findings relevant to accessing licensed

content in a multi-institutional context using a universal registry of link resolvers.
- NLM will designate an individual to serve as the primary contact for these efforts. This person will be a prospective member of EthicShare's Governance Board, to be established at the initiation of EthicShare's pilot implementation phase (December 2007-May 2009).

b. University of Rochester River Campus Libraries' eXtensible Catalog (XC) Project (see Appendix E): The EthicShare and XC teams recognize significant mutual interests and commonality of conceptual framework, and technical architectural and components among their respective projects. Specifically, XC has expressed interest in EthicShare's extensive work with Drupal to deliver community-oriented services; and EthicShare holds particular interest in XC's development and refinement of their Metadata Services Hub and the specific services (e.g., normalization, terminology, etc.) to be performed within that component. EthicShare and XC teams will share development work during the next phases of both projects, and the University of Rochester will designate an individual to serve on the EthicShare Technology Review Panel, to be established at the outset of EthicShare pilot implementation.

c. OCLC (see Appendix F): EthicShare intends to leverage OCLC's gateway and registry services to help provide appropriate copy full-text linking services to its multi-institutional user population. OCLC/WorldCat Grid Portfolio services will work with the EthicShare technology team to test and refine currently available and prospective options for making the Gateway Services (especially as relates to resolving to the registry of OpenURL resolvers) easy and transparent to use for end users. EthicShare would provide OCLC with technical and usability feedback regarding the EthicShare implementation(s), and would promote the population and use of the WorldCat Registry to its institutional project partners and others. Ultimately, EthicShare's successful implementation of OCLC's registry services (particularly its OpenURL resolver registry) can offer OCLC/WorldCat Grid Portfolio a highly visible, production-level implementation (and demonstration site) that demonstrates the value of universal registry services.

d. CLIR (see Appendix G): CLIR's continued interest in EthicShare relates to one of CLIR's strategic themes, the "Next Scholar," which explores the transformational aspects of disciplinary methodologies, changing pedagogies, and evolving behaviors of researchers. To support EthicShare, CLIR will contribute $15,000 to convene ethics scholars for workshops that will take place at major annual meetings in the fields of practical ethics, smaller sessions to address issues of governance and sustainability, and other on-site sessions at partner institutions to engage scholars and to encourage wider engagement in a virtual community for ethics researchers.

V. EthicShare Pilot Implementation Work Plan

The EthicShare project will draw on a distributed group of participants, resources, and expertise to implement the technology, content, and community aspects of EthicShare.

The pilot implementation will span 18 months, from January 2008 through June 2009 and will include three phases. Technology development, data ingest, indexing protocols, and usability testing will be completed by month 12.

1. **Phase I (January-March 2008): Preliminary Content Ingest, Indexing, and Community Engagement Protocol Development**

Content Development and Aggregation:

During the first phase the project staff will focus on determining a scaleable, systematic data model for data ingest and processing through use of existing parsers and experimental Bayesian methods. The technology staff will build on work completed in the planning phase in the areas of data ingest, de-duplication and comparison work, and full text resolving.

Additionally, project and technology staff will identify additional sources or content for EthicShare and establish protocols for importing hosted content and user contributed content.

The technology team will also convene a technology review committee to work throughout the project on evaluating development standards, protocols, and documentation.

Concluding this phase will be the finalization of a detailed technology implementation plan, to include hardware specifications, operations requirements, interoperability strategies, interface requirements, coding of required extensions, and the implementation of staged releases for community feedback and evaluation.

Indexing, Access, and Discovery:

Project staff will work with the metadata expert to develop automated classification and indexing techniques, as well as a method to assess the effectiveness of various indexing inputs (professionally-assigned terms, user-contributed, or automatically generated) based on end-user behaviors. We will also put in place standards for indexing and work with the metadata expert to implement protocols for community involvement.

Community Engagement:

The EthicShare Partners will use press releases, strategically placed articles, and attendance at national and local conferences to announce and report on the pilot implementation of EthicShare, program goals, and the collection scope. The scholarly community of ethics is currently served by a number of resources for sharing news and information, including listservs, newsletters, announcements to members of professional societies and organizations in widely read journals, blogs, and by word of mouth. Throughout the pilot implementation, these venues will be used to report progress and solicit input about priorities and issues.

Governance:

An ultimate goal of EthicShare is to create a sustainable community resource. This end goal will guide the necessary governance and organizational requirements of the pilot implementation. The Governance Board will be charged and will conduct its work through conference calls and in-person meetings. The project plan calls for annual face-to-face meetings of all board members as well as meetings of project faculty during relevant professional meetings (e.g., APPE, ASBH, ABPD, etc.).

During all phases, the Governance board will play a lead role in addressing the organizational dimensions of implementation. These dimensions include:

- Defining ultimate scope for the content repository and guidelines for maintaining quality and integrity of the resources as well as adding to its range of materials;
- Establishing an Editorial Board with user participation to vet EthicShare content and collection policies
- Developing policies for editorial participant contribution (or removal) of content;
- Creating incentives and mechanisms for community engagement;
- Establishing intellectual property policies necessary to capture and make accessible commercial citation content;
- Establishing protocols on rights associated with contributed commentary;
- Securing agreement on rights to computer code and systems developed for EthicShare;
- Creating a governance structure to manage, expand, and sustain EthicShare;
- Establishing optimal organizational status to sustain EthicShare (e.g., non-profit consortia);
- Developing processes to identify, review, and pursue financial models to support EthicShare.

2. Phase II (March 2008-December 2008) Content Ingest, Indexing Implementation, and Community Engagement

During this major phase, the major technology work, alpha launch, and usability testing will be completed, making it possible for EthicShare to be released in beta by March 2009.

Content Development and Aggregation:

During the second phase the project staff will implement the data acquisition and repository model to ingest and process NLM/PubMed and other citation data. The technology staff will also begin to develop and implement core user features and functionalities. Controls for user authorizations, document-level permissions, version control/history and rollback are will also be implemented as requirements for the repository's community-oriented functions. The technology team will work with a design consultant to create the site interface.

The technology team will work with a design consultant to create the site interface.

The technology review committee will work closely with the technology staff throughout this process.

In conjunction with the governance board, the Collection Development Lead will identify sources of citation data in the areas of:

- Ethics and Human Rights
- Ethics and Responsible Conduct of Research
- Journalism Ethics
- Engineering Ethics
- Business Ethics
- Environmental Ethics
- Ethics and Public Policy

The Governance Board and Project Director will also develop and implement EthicShare's intellectual property and copyright policies

Indexing, Access, and Discovery:

Technology staff will design user features to facilitate user-contributed content description, discovery, and access. These features will be implemented at the end of phase II. Project staff and partners will work with interface and graphic design contract specialists, and usability testing will take place at the end of Phase II.

Technology staff will work with OCLC to implement options and refinements to authenticate to the OpenURL resolver registry for accessing institutionally licensed content.

Additionally, project research staff will work to develop incentives and useful mechanisms for community participation in content description. Project staff and the Governance Board will also develop methods for the community and site administrators to evaluate any differences in quality of citations/content description produced professionally, by users, or through automated means. Technology staff will also implement methods for refreshing EthicShare data and keeping descriptions and citations up to date through automated means. Methods of facilitating participation and evaluating content will be implemented at the end of Phase II.

Community Engagement:

During this phase, project staff and partners will actively engage the ethics scholarly community about the upcoming release of EthicShare. In collaboration with the governance board, project research staff will also identify and codify expected rules of engagement for users. Project and technology staff will also design mechanisms to facilitate and evaluate user participation.

Governance:

Project staff will work with partners and the governance to board to codify rules of participation, EthicShare intellectual property policy, and user privacy protocols.

3. Phase III (January 2009-June 2009) EthicShare Release and Reporting

EthicShare's beta launch will take place by January 2009. All documentation and reporting will take be released at the end of this phase.

Content Ingest and Development:

The Collection Development Lead will identify, select, and acquire content that is not routinely found in scholarly databases. This includes grey literature, popular press literature, commission reports, multimedia content, and digitized content.

Technology and project research staff will investigate rationale and additional methods for maintaining the repository's quality and relevance through automated means (web crawl, feeds, batch ingest, etc.) The staff will also develop a work plan to implement these automated features in EthicShare's future versions.

The Project Director and technology staff will evaluate rates of contribution and quality of user-contributed content, and work with governance board to develop any additional user functionalities or incentives to encourage user participation.

Indexing, Access, and Discovery:

Project and technology staff will evaluate user-contributed content descriptions and work with the governance board to implement any needed changes to protocols. Community evaluations of content description methods will also be collected by automated means.

Community Engagement:

With the beta launch of EthicShare, all EthicShare partners will announce, demonstrate, and promote the site by various means including presentations at relevant conferences and professional meetings, newsletter articles, listserv messages, and more. Project research and technology staff will evaluate community participation and user behaviors via automated and non-automated means (surveys, interviews, focus groups and assessments). Project staff will work with the governance board to institute any needed policy changes for user participation, privacy, intellectual property rights, or general governance.

Governance:

The governance board and partners will meet for a general meeting to discuss the progress and future directions. New partners will be engaged for future development, and all policies will be reviewed.

A final report, compiled by the Project Director with input from the project staff, will include recommendations for future action and collaboration. It will be shared with the Andrew W. Mellon Foundation, the partnering institutions, and other interested parties.

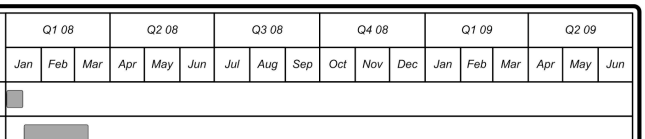
All methods of content development and ingest, technology infrastructure, community engagement and organization will be documented and incorporated in a plan for full implementation of EthicShare. The plan will include an articulation of the phases to move from a pilot implementation to a community-sustained resource and will be the basis for a grant proposal to potential funding agencies.

4. Development and Testing Schedule:

The Project team, including technology, collection development, and governance bodies, will begin development work with initial data acquisition and ingest, and will work of the following features and activities in the areas of Content, Access, Community, and Governance during the project.

Timeline for Development and Testing:

ID	Task Name	Start	Finish
1	Preparation	1/2/2008	1/15/2008
2	Charge governance board (G1)	1/17/2008	3/12/2008
3	Charge tech. advisory committee (G2)	1/17/2008	3/12/2008
4	Content area #1 -- selection and acq. (C1)	1/17/2008	4/9/2008
5	Data model development (A1)	1/17/2008	2/13/2008
6	Metadata repository architecture dev. (A2)	2/1/2008	5/22/2008
7	Metadata acq. and processing dev. (A3)	3/4/2008	7/21/2008
8	Faceted search refinement (Solr) (A4)	3/4/2008	4/28/2008
9	Small communities of practice dev. (V1)	4/3/2008	5/28/2008
10	Content policy development (G3)	4/3/2008	6/25/2008
11	Content area #2 -- selection and acq. (C2)	4/3/2008	7/23/2008
12	Content area #1 – ingest (C3)	4/10/2008	5/21/2008
13	Social networking tools dev. (V2)	4/24/2008	4/1/2009
14	OpenURL multi-institution access (A5)	5/7/2008	9/26/2008
15	Content area #3 -- selection and acq. (C4)	6/5/2008	9/24/2008
16	Privacy policy development (G4)	6/19/2008	8/27/2008
17	Intellectual property policy dev. (G5)	6/19/2008	8/27/2008
18	Content area #2 – ingest (C5)	7/30/2008	9/9/2008
19	**Alpha Launch**	8/7/2008	9/3/2008
20	Early Design Feedback	9/4/2008	9/17/2008
21	Ontology methods explore & dev. (A6)	9/18/2008	1/7/2009
22	Content area #3 – ingest (C6)	9/25/2008	11/5/2008
23	Sustainability planning (G6)	10/2/2008	3/26/2009
24	Governance meeting	10/17/2008	10/23/2008
25	Recommenders planning & testing (V3)	1/8/2009	4/29/2009
26	**Beta Launch / Large-scale feedback**	4/30/2009	5/27/2009
27	Final Reporting	5/27/2009	6/23/2009



Content Items:

- C1: Selection and acquisition of Content Area #1 – NLM data
- C2: Selection and acquisition of Content Area #2, including any such negotiations and resolving of intellectual property issues initial (batch) bibliographic data selection, acquisition, and ingest
- C3: Content Area #1 – data ingest and processing, including normalization, setting of updating routines, etc.
- C4: Selection and acquisition of Content Area #3, -- this stage is expected to focus on grey literature, multimedia, digitized content, other literature and resources that are not routinely captured in scholarly databases or the popular literature
- C5: Content Area #2 – data ingest and processing, including normalization, de-duplication, setting of updating routines, etc.
- C6: Content Area #3 – data ingest and processing

Access Items:

- A1: Data model development, with compliance to metadata standards, planning for current and future indexing and web services functions for interoperating with external services
- A2 and A3: Metadata architecture repository development and processing functions – the repository provides a cache of unprocessed newly ingested data, processing routines for normalizing, de-duping, updating, enriching, and applying terminologies to records to be stored in the repository and indexed by the Solr engine. EthicShare intends to work consult with the University of Rochester (XC project) and Cornell University NSDL project) that are attempting to develop and implement similar architecture.
- A4: Faceted search refinement – further development of the Solr indexing, search, and display work produced in the EthicShare prototype (May 2007); exploration of indexing and faceting of values submitted by end-users.
- A5: OpenURL multi-institutional access – work with OCLC to refine existing and/or implement new options for authenticating to the OpenURL resolver registry.
- A6: Ontology methods exploration and development – with guidance from a consultant, this work will inform efforts to incorporate experimental approaches to automated indexing terminology assignment; methods for enhancing the effectiveness of tagging systems (e.g., “tagmash” strategies); effective forms of ontology convergence.

(Virtual) Community Items:

- V1: Small communities of practice – identify and study specific communities within the field (e.g., project teams, inter-institutional collaborations) to help prioritize and aim the development and implementation of social networking tools into the EthicShare environment.

- V2: Social networking tools development – using an iterative process, introduce various integrated collaboration and communication tools into the EthicShare environment, perform assessments, refine for scholarly practices and re-introduce; measure adoption and satisfaction, and identify indicators of impact.
- V3: Recommenders planning and testing: using content-based filters, collaborative filters, and hybrid methods, introduce recommender services into the environment; measure user satisfaction with various options in preparation for tuning the algorithms; draw upon the U of Minnesota's Computer Science Department's expertise in this area of research and development.

Governance Items:

- G1: Charge governance board
- G2: Charge technical advisory committee
- G3: Develop EthicShare content and editorial policies
- G4: Develop privacy policy and advise on informed consent practices
- G5: Develop intellectual property policy, particularly as relates to end-user contributed content
- G6: Develop sustainability plan and strategy (e.g., sponsors, institutional funding/support, professional associations, access fees, etc.); evaluate effectiveness of current operations and model

5. Feedback Methods Timeline

Beginning in Spring 2008, the technology team and Project Manager will implement staged feedback loops and usability testing in the areas of Content, Access, and Community Development. These feedback iterations with bioethics scholars will continue throughout EthicShare's pilot implementation. Assessment visits, usability testing, focus groups, user satisfaction surveys, and other mechanisms will be employed to regularly assess the EthicShare development process. Scholars will be identified via their affiliation with bioethics graduate programs across the country, as well as membership in the American Society of Bioethics and Humanities and/or the Association of Bioethics Program Directors. Feedback will be collected regularly throughout all stages of EthicShare's pilot implementation.

Throughout all phases, governance development will be assessed via conference calls and short email surveys with members of the Governance Board.

Early Design Feedback (Spring 2008)

- One cycle
- Take design ideas to community
- Organize focus groups, and carry out focused assessment visits to two sites:
  - Show them mock-ups and ideas

  - Get feedback before implementing
  - Initial set of feedback obtained in planning grant
- One more cycle of early design feedback, at six month period, for planned future design

Structured Rapid Feedback (Late Spring 2008)

- Roll out new set of features
- Selection of participants
- 8-10 participants:
  - Set of tasks
  - Performance measures
  - Failure measures
  - User satisfaction survey
  - Also look for performance differences between the core users and new adopters

Large-scale Feedback (Summer 2008-Spring 2009)

- Every six months (three times during pilot period)
- Roll out major releases to larger community, inviting group of 150 by email
- Participants to test group of features remotely
- Include feature-oriented survey + free-form response + user satisfaction survey

Usability Lab Testing (Summer 2008-Spring 2009)

- Every six months (three times during pilot period)
- Bring 3-4 novice users into lab for detailed testing of prototype
- These users are likely long-term users of the system

VI. Conclusion

The field of practical ethics, with its numerous subsets, has produced some project-based exploration of discrete content sites, but it has not yet successfully addressed the broader challenges associated with federating, sharing, and managing the complex mix of source materials that support discourse and engagement within the scholarly community. This pilot implementation effort will leverage existing resources to create a lasting contribution to the field and its related disciplines.

In summary, the deliverables for the pilot implementation phase include:

I. Developing an interdisciplinary virtual community for scholars in practical ethics that serves as a model for social-scholarly research environments for other disciplines. The environment centers on a core collection of metadata representing scholarly materials, materials from the popular press, and multimedia resources. It is fueled by open source technological development based on a Drupal content management system platform and functionality that allows scholars to interact

with resources and each other in new ways. It will also facilitate collaboration among groups of users based on topic interests, projects, and joint research and writing.

II. Investigating the efficacy of traditional and newer forms of indexing and classification that enhance discovery and access in an online research environment. By creating flexible models of content description, we will evaluate the community's interest and effectiveness in adding descriptive and other data to the EthicShare index to enhance discovery processes. These models—based on user behaviors, expert contributions, and other factors —will also allow EthicShare to contribute to the development and evaluation of semantic web techniques for enhanced information retrieval.

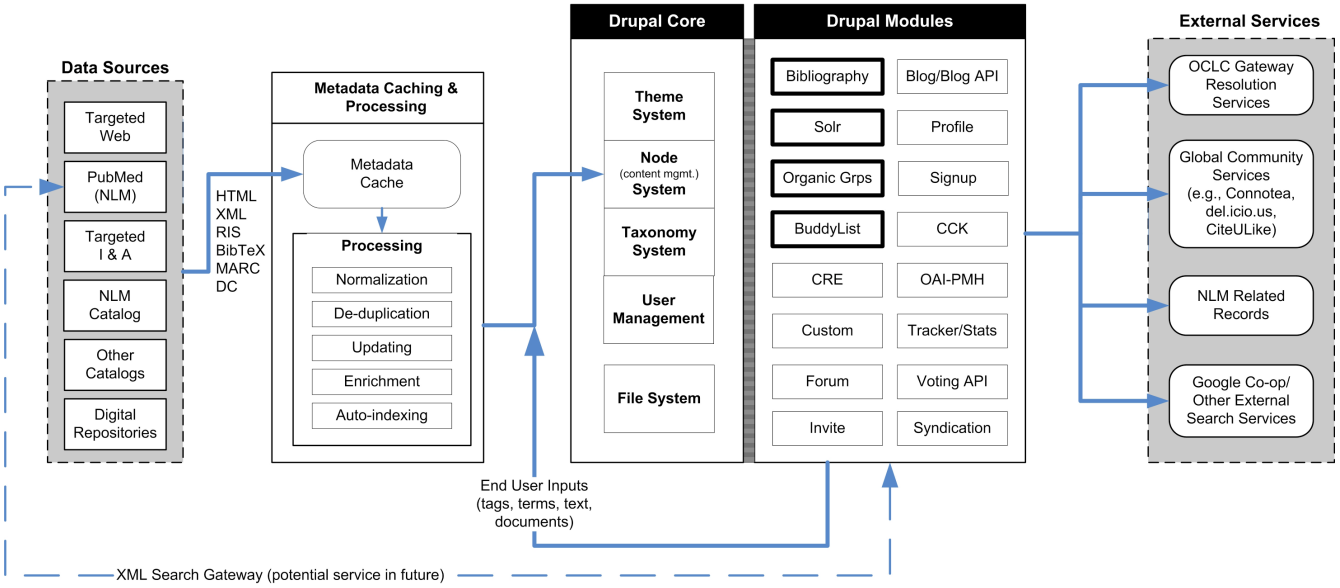
III. Extending an open architecture technology platform with intent for documented open source release. All development documentation will be shared with technology partners and other interested parties.

IV. Developing and implementing policies and best practices for efficient collection building and management in an interdisciplinary, multi-institutional virtual community.

V. Contributing to research about the incentives and mechanisms that effectively raise community participation and engagement in creating new models of collaboration and publishing over time.

VII. Appendices

Appendix A: EthicShare Architecture Diagram (Pilot Implementation)



Notes:
1. See the following appendix for descriptions of the Drupal modules intended in Service and Delivery.

Appendix B: Drupal Modules for EthicShare Pilot Implementation—Description

Module Name	Notes
Bibliography	Bibliography provides core functionality to the EthicShare site. It allows for the creation, importation and maintenance of citation data. Features include but are not limited to: multiple import formats (Endnote, RIS, BibTex, etc), integration with Drupal taxonomy system, end-user interfaces to citation data and OpenURL COinS (ContextObjects in Spans) integration. The EthicShare team has also extended this module to include OpenURL links within citation records. Search to Bibliographic data is provided via the Solr Module, which integrates the Apache Solr indexing and search engine into the system.
Blog	The Blog Module grants all site users with a simple blogging space. A variety of modules exist to add enhanced blogging features (ex APIs to blog content).
Buddylist	A key component of the current EthicShare prototype, the Buddylist Module allows users to add selected members from the site community with which to selectively share information. Currently, users can track content contributed to the EthicShare site by members of their own buddylist as well as view citations bookmarked by members of their buddylist. Future site enhancements will likely make use of the buddylist module (ex. showing users all public groups to which members of their buddylist belong.)
CCK	Drupal organizes content into "content types." Content types are foundational to the Drupal platform, providing mechanisms to ingest, process and display site content as well as for controlling access to content. The Content Construction Kit, and related modules, allows administrators to create and manage content types via a web-based interface. A wide variety of constraints, field types and output styles may be applied in this manner. Site contributors are given access to add content to these newly created forms through Drupal's role-based permissions system.

Content Recommendation Engine (CRE)	This module builds upon the VotingAPI Module (http://drupal.org/project/votingapi) and applies the "Slope One" algorithm (http://en.wikipedia.org/wiki/Slope_One) to recommend content to users based on other users' voting actions. The pilot phase of the project will provide us with an opportunity to put this recommendation system into place. The prototype phase did not provide an adequately large user base for this module to be properly applied.
Custom Modules	An example of a custom module developed by the EthicShare team is the Citations in Organic Groups Module. This module was created by EthicShare team to allow users to post citation references from the Bibliography Module into organic groups for discussion among group members. Ongoing discussions of citations appear in site search results, helping to alert users of citation discussions within their subscribed groups. Posted citations are affiliated with one group and one user, allowing for various views of ongoing discussions (ex ongoing discussions of users on my buddylist - see the "buddylist" module). Other modules will be authored as necessary.
Forum	Provides basic forum functionality for the site, although all content in Drupal can behave like a forum with comment threads acting as forum-like threaded discussions. The Forum Module will be used in conjunction with the Organic Groups module to provide a forum space to various groups within the site.
Invite	Allows users to send Gmail-style invitations, and automatically escalates new users who use them to a Drupal role as configured by site administrators.
Organic Groups	The Organic Groups Module plays a key role in the current prototype. The Organic Groups Module allows users to create online collaborative spaces, assign group administrators, determine group content access permissions, subscribe to group content via email or RSS, and a variety of other content sharing related activities.
Profile	Allows for configurable user profiles. Administrators can also force users to complete profile fields during the registration process on a field-by-field basis. User profile data is actionable information that can be referenced by modules external to the Profile Module to customize site users' experience.
Signup	Allow users to sign up for content (especially events) and to receive reminders via email.

Solr	Integrates Drupal-based content with the Solr Search engine. The EthicShare team has made significant modifications to the original Solr Module code base. First, the team has specifically adapted the Bibliography module to work well with the Solr search appliance. We also have added support for Solr's "faceted" search result browsing features. Finally, the team built a feature (via the EthicShare-created "Citations in Organic Groups" module) to allow end users to post citations directly into group spaces for discussion.
Statistics	Logs access statistics for the site.
Tracker	Enables tracking of recent posts for users.
Voting API	Provides a shared voting API for other modules.
Taxonomy	A core Drupal system feature, the Taxonomy module provides a method of applying metadata to all Drupal content. This metadata allows for the redistribution and general repurposing of all Drupal content through a variety of mechanisms.

Appendix C: Ethics Professional Organization Letters of Support

ASSOCIATION FOR
Practical & Professional Ethics

Brian Schrag
Executive Secretary

Executive Committee

Anita L. Allen
Henry R. Silverman
Professor of Law and
Professor of Philosophy
University of Pennsylvania

George G. Brenkert, Director
Georgetown Business Ethics
Institute
Georgetown University

Dean Elliott
Poynter Jurisdom Chair
Media Ethics and Press Policy
University of South Florida,
St. Petersburg

Deborah G. Johnson
Department of Science,
Technology, and Society
University of Virginia

Elizabeth Kiss, President
Agnes Scott College

Robert F. Leavy, Director
Center for Professional Ethics
Case Law School

Lisa H. Newton, Director
Program in Applied Ethics
Fairfield University

David T. Ozar
Department of Philosophy
Loyola University of Chicago

Lisa S. Parker, Director of
Graduate Education
Center for Bioethics and
Health Law
University of Pittsburgh

Michael S. Pritchard, Willard
Sutton Professor of Philosophy
Center for the Study of
Ethics in Society
Western Michigan University

Rosemarie Tong, Distinguished
Professor for Health Care Ethics
and Director, Center for Professional
and Applied Ethics
University of North Carolina, Charlotte

Vivian M. Weil, Director
Center for the Study of
Ethics in the Professions
Illinois Institute of Technology

September 14, 2007

Professor Jeffrey Kahn
Center for Bioethics
University of Minnesota
N504 Boynton
420 Church St. SE
Minneapolis MN 55455-0346

Dear Jeff,

We at the Association of Professional and Practical Ethics are pleased to support the work of EthicShare, a collaborative virtual environment for ethics researchers and scholars. We look forward to working with you throughout the pilot implementation phase of the project to engage the ethics community in EthicShare. I hope provide opportunities at the APPE Annual Meeting for sharing and advancing the work of you and your project team. In the meantime, I wish you success as you develop this important and creative venture. Please let me know if I can be of further assistance.

Sincerely,

Brian Schrag
Executive Director

Brian Schrag
Executive Secretary,
Association for Practical and Professional Ethics

Acting Director,
Poynter Center for the Study of Ethics and American Institutions

P. O. Box 6311 • 618 East 10th Street • Bloomington, Indiana 47405 • (812) 855-0261
(812) 855-2815 • Email: appe@indiana.edu
http://www.indiana.edu/~appe/

UNIVERSITY OF MINNESOTA

Twin Cities Campus ***Center for Bioethics*** *N504 Boynton 410 Church Street S.E. Minneapolis, MN 55455-0346*

September 26, 2007

Cecily Marcus, PhD
Project Coordinator
EthicShare Planning Project
University of Minnesota
Minneapolis MN 55455-1346

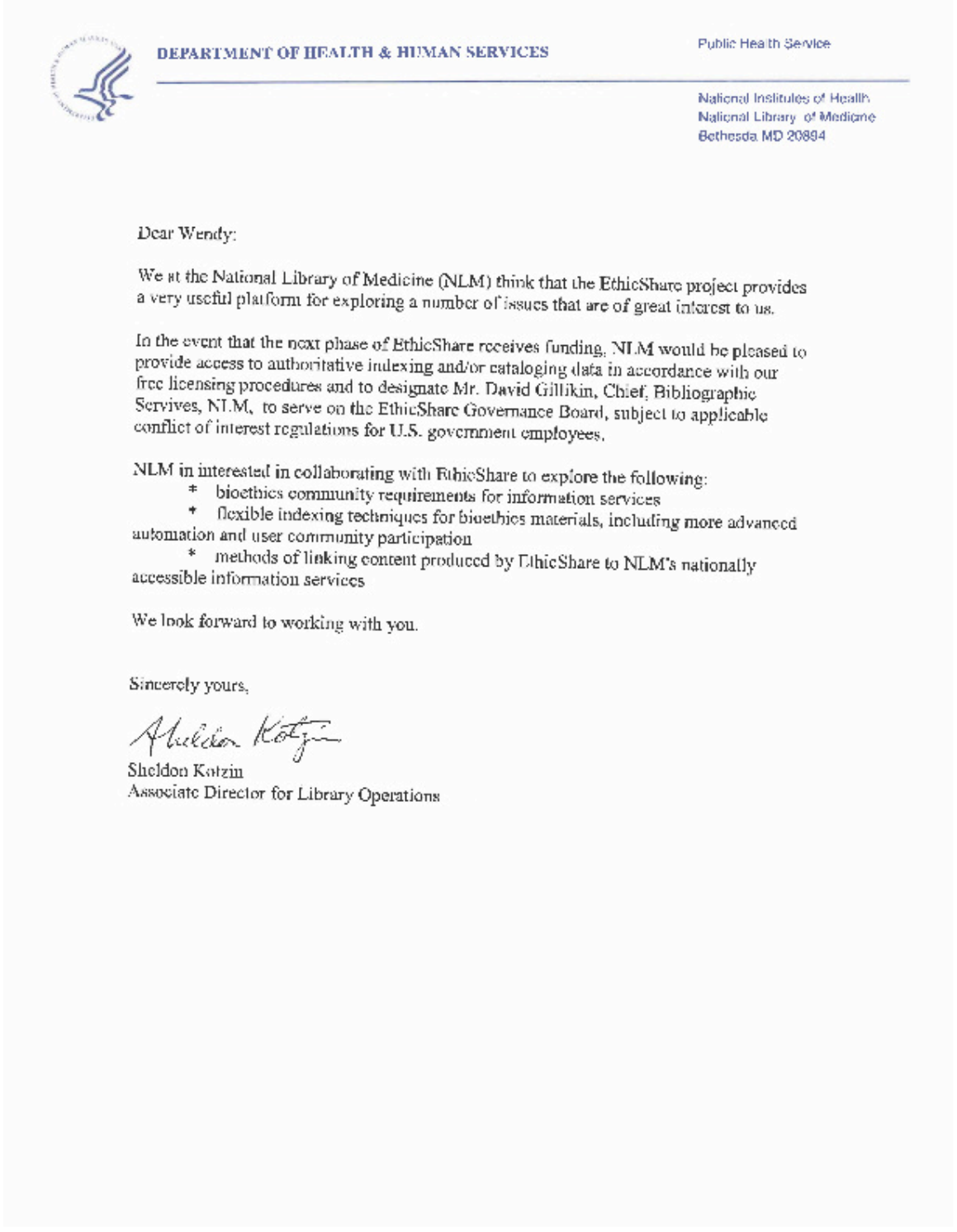
Dear Cecily,

The Association for Bioethics Program Directors (ABPD) is pleased to support the work of EthicShare, a collaborative virtual environment for ethics researchers and scholars. We look forward to working with EthicShare project staff throughout the pilot implementation phase to engage the ethics community in EthicShare. We hope to provide opportunities at ABPD meetings and through the ABPD membership for sharing and advancing this important venture.

Sincerely,

Jeffrey Kahn, PhD, MPH
Founding President
Association of Bioethics Program Directors

Appendix D: NLM Letter of Support



DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

National Institutes of Health
National Library of Medicine
Bethesda MD 20894

Dear Wendy:

We at the National Library of Medicine (NLM) think that the EthicShare project provides a very useful platform for exploring a number of issues that are of great interest to us.

In the event that the next phase of EthicShare receives funding, NLM would be pleased to provide access to authoritative indexing and/or cataloging data in accordance with our free licensing procedures and to designate Mr. David Gillikin, Chief, Bibliographic Services, NLM, to serve on the EthicShare Governance Board, subject to applicable conflict of interest regulations for U.S. government employees.

NLM in interested in collaborating with EthicShare to explore the following:

* bioethics community requirements for information services
* flexible indexing techniques for bioethics materials, including more advanced automation and user community participation
* methods of linking content produced by EthicShare to NLM's nationally accessible information services

We look forward to working with you.

Sincerely yours,

Sheldon Kotzin
Associate Director for Library Operations

Appendix E: Rochester Letter of Support

UNIVERSITY OF
ROCHESTER

RIVER CAMPUS LIBRARIES

September 24, 2007

To Whom It May Concern (Letter of Support for the University of Minnesota's EthicShare proposal):

Through recent yet independent connections with the Mellon Foundation, the University of Rochester River Campus Libraries and the University of Minnesota Libraries have identified significant common ground in the conceptual framework and technical architectural for our respective project work. Both the University of Rochester's *eXtensible Catalog* project and the University of Minnesota's *EthicShare* collaboration project propose to create and manage tailored aggregations of metadata and to leverage innovative indexing and community-oriented modules to enhance discovery, access, and user interactivity in these environments.

Specifically, Rochester (XC) has expressed interest in Minnesota's (EthicShare) extensive work with Drupal to deliver community-oriented services; and EthicShare holds particular interest in XCs development and refinement of their Metadata Services Hub and the specific services (e.g., normalization, terminology, etc.) to be performed within that component. Both projects are invested in design processes that acquire assessment data and ongoing feedback from the user community. Both are also committed to open source release of resulting code and dissemination of project findings.

In conversations that preceded Minnesota's submission of their pilot project proposal, we both recognized the potential benefit of sharing information on development work during the next phases of our projects. As a formal mechanism for such exchange, the University of Rochester has agreed to designate an individual to serve on the EthicShare Technology Review Panel, to be established at the outset of EthicShare pilot implementation.

Sincerely yours,

Jennifer B. Bowen
Director, Catalog and Metadata Management
Co-Principal Investigator, eXtensible Catalog Project

jbowen@library.rochester.edu
585-275-0004

Rush Rhees Library
University of Rochester
Rochester, New York 14627

Appendix F: OCLC Letter of Support

OCLC Online Computer Library Center, Inc.
6565 Kilgour Place
Dublin, OH 43017-3395 USA
1-614-764-6000
Fax: 1-614-764-6096

August 30, 2007

Cecily Marcus
Project Director
EthicShare, http://www.lib.umn.edu/about/ethicshare/

Letter of Support:

OCLC would like to express interest in and support for the EthicShare project, http://www.lib.umn.edu/about/ethicshare/. We are pleased to note that EthicShare's virtual community will include service implementations with significant connections to the OCLC Gateway/Registry.

The OCLC OpenURL Registry services include an OpenURL Resolver Registry and a Gateway which can redirect OpenURLs to registered resolvers based on the requester's IP address. Users searching for information on a partner's site, once an item is found, click a link to the OpenURL gateway and are taken directly to an OpenURL resolver maintained by their home library. The home library's collection is then surfaced on the open web and the user finds the information he or she needs. EthicShare already provides such a re-direct in it version 1 prototype at http://ethicshare.cs.umn.edu/.

OCLC is interested in working with the EthicShare development team to explore current and prospective options for making the OCLC OpenURL Resolvers Registry and OpenURL Gateway services less demanding and more invisible to the end-user. In return, EthicShare would provide OCLC with technical and usability feedback regarding the implementation, and would promote the population and use of the WorldCat Registry to its institutional project partners and others. Potentially, the most significant contribution that EthicShare can offer to OCLC is an actual, scaleable, demonstration site that has implemented OCLC's OpenURL Registry.

OCLC hopes that this use of its services will serve as an example to help other open-access information sites learn to provide library-specific services.

Regards,

Don Hamparian
Manager WorldCat Grid Portfolio

mailto:hamparid@oclc.org
614.764.6017 (voice)

Appendix G: CLIR Letter of Support:

COUNCIL ON LIBRARY AND INFORMATION RESOURCES

1755 MASSACHUSETTS AVENUE, NW, SUITE 500, WASHINGTON DC 20036-2124
Telephone 202.939.4750 • Fax 202.939.4765 • Web http://www.clir.org

10 September 2007

Wendy Pradt Lougee
University of Minnesota Libraries
499 Wilson Library
Minneapolis MN 55455

Dear Wendy,

We at the Council on Libraries and Information Resources (CLIR) have continued interest in the EthicShare project and its success. To further support your work, CLIR will contribute $15,000 to help support the planned events of the project which will convene scholars.

As you know, one of CLIR's strategic themes relates to the "Next Scholar," exploring the transformational aspects of disciplinary methodologies, changing pedagogies, and evolving behaviors of researchers. We plan to continue engagement with the issues addressed by the Scholarly Communications Institutes and also work to understand the dynamics of emerging disciplines and behaviors. The community of practical ethics, an early SCI participant, affords a vital context to pursue this theme.

As we discussed, CLIR's contribution would be used to convene ethics scholars for workshops that will take place at major annual meetings in the fields of practical ethics, smaller sessions to address issues of governance and sustainability, and other on-site sessions at partner institutions to engage scholars and to encourage wider engagement in a virtual community for ethics researchers.

I look forward to participation in this exciting project.

Sincerely,

Charles Henry
President